

APPLICANT(S): WILK Brian, et al.
SERIAL NO.: 10/748,170
FILED: December 31, 2003
ASSIGNEE: Intel Corporation
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REMARKS

The present Amendment is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Applicants assert that the present invention is new, non-obvious and useful. Prompt reconsideration and allowance of the claims are respectfully requested.

Status of the Claims

Claims 1-13 are pending in the application. Claims 1-5, and 13 have been amended.

Voluntary Amendment of Claims

Applicants have voluntarily amended claims 1-5, and 13 to more accurately describe the claimed invention. It is respectfully submitted that the amended claims are fully supported by the originally filed application. No new matter has been added.

Remarks to Claim Rejections

Claim Rejections – 35 USC §112

In the Office Action, the Examiner rejected claims 10-13 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. In particular, the Examiner contends that claim 10 states that pressure releases the dies but the specification states that the dies have to be cut first and then the pressure can release them; and that claim 13 is not enabled because the die picker is not shown in the drawing.

Applicants respectfully disagree with the Examiner's contention.

With regard to claim 10, Applicants respectfully submit that claim 10 is clearly supported by the specification as originally filed. For example, paragraph [0037] discloses causing "the gas pressure inside cavities 34 to become substantially equal to the gas pressure on exposed surface 18, thus releasing semiconductor wafer 2 from wafer support system..." Also, paragraph [0038] discloses that sawed die 6 "may be individually released... in such a

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way that the gas pressure in cavity 34 may become equal or higher than the gas pressure surrounding wafer support system 4." Therefore, Applicants respectfully submit that claim 10 fully meets the enablement requirement, as required by 35 U.S.C. §112, first paragraph.

In addition, paragraph [0016] of the specification discloses that the die "may be sawed out of semiconductor wafer 2 by, for example, a laser saw or a mechanical saw." Therefore, the specification fully meets the enablement requirement, as required by 35 U.S.C. §112, first paragraph.

Furthermore, Applicants would like to point out that the specification as originally filed does not state that the dies must be cut with a laser first, as contended by the Examiner. In addition, there is no requirement in law, rules and regulations that a method must recite every single step described in the specification. In fact, there is even no requirement that a method claim must recite all the steps needed to perform the method in actual implementation. It is common practice to recite only the method steps that are needed in order to clearly define the method and the features that distinguish the method from the prior art.

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 10 under 35 USC §112.

With regard to claims 11-12, Applicants respectfully submit that the Examiner has not specifically pointed out why claims 11-12 fail to comply with the enablement requirement of 35 U.S.C. §112, first paragraph. Applicants respectfully submit that claims 11-12 are fully supported by the specification as originally filed and meet the enablement requirement of 35 U.S.C. §112, first paragraph.

With regard to claim 13, without conceding the appropriateness of the Examiner's rejection of the claim, Applicants have voluntarily amended claim 13 to specifically recite a picking tool, rather than a "picker", to be fully consistent with the language used in the specification. Claim 13 is fully supported by the specification as originally filed, for example, in paragraph [0022], and therefore fully meets the enablement requirement of 35 U.S.C. §112, first paragraph.

In view of the above, Applicants respectfully request that the rejections of claims 10-

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13 under 35 U.S.C. §112, first paragraph be withdrawn.

In the Office Action, the Examiner rejected claims 10-13 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner contends that claim 10 states that pressure releases the dies but the specification states that the dies have to be cut first and then the pressure can release them; that claim 12 recites a step not evident from the drawings and does not indicate what pierces the flexible wafer support; and that claim 13 recites a die picker that is not part of structure of the support system.

Applicants respectfully disagree with the Examiner's contention.

With regard to claim 10, it is respectfully submitted that the Examiner has not properly raised an indefiniteness rejection. First, Applicants would like to point out that the feature releasing the die by increasing a lower gas pressure is clearly supported by the originally filed specification, for example in the description referring to FIGS. 8A-8D. Furthermore, regardless of whether the Examiner agrees or disagrees with the Applicants that this feature is adequately supported by the specification, Applicants see no basis to contend that the feature is indefinite under 35 USC § 112. It is respectfully submitted that claim 10 is definite and distinctly claims the subject matter which Applicants regards as the invention.

With regard to claim 11, Applicants respectfully submit that the Examiner has not properly specifically pointed out why claim 11 is indefinite. Applicants respectfully submit that claim 11 is fully supported by the originally filed specification, as discussed above, is definite, and distinctly claims the subject matter which Applicants regards as the invention.

Claim 12 recites increasing a lower gas pressure by piercing a flexible surface. First, Applicants would like to point out that this feature of claim 12 is clearly supported in paragraph [0038] of the specification and with reference to FIG. 8B. Without conceding the appropriateness of the Examiner's rejection of claim 12 as indefinite based on a contention that it is not clear what pierces the flexible surface, claim 12 is a method claim that may be practiced with any tool that may be used to pierce the flexible surface. Therefore, it is respectfully submitted that claim 12 is definite and distinctly claims the subject matter which Applicants regards as the invention.

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Amended claim 13 recites separating a die from a semiconductor wafer by coupling a die picking tool to the exposed surface of said die. It is respectfully submitted that the use of a die picking tool is described in paragraph [0022] of the specification. Therefore, claim 13 is definite and distinctly claims the subject matter which Applicants regards as the invention.

In view of the above, Applicants respectfully request that the rejections of claims 10-13 under 35 U.S.C. §112, second paragraph, be withdrawn

Claim Rejections - 35 USC §102

In the Office Action, the Examiner rejected claims 1-3 under 35 U.S.C. §102(e), as being anticipated by Togawa et al. (US Patent 6,852,019). Specifically, the Examiner contends that Togawa et al. teaches a method having a wafer support system, a vacuum chamber, temperature controls of first and second environments, and a perforated surface.

The Examiner also rejected claims 1-13 under 35 U.S.C. §102(e), as being anticipated by Nonaka (US Patent 6,012,509). Specifically, the Examiner contends that Nonaka teaches a wafer support system, a vacuum chamber, temperature controls of first and second environments, a perforated surface, and a flexible surface.

In order to reject a claim under 35 U.S.C. §102, MPEP 2131 states that “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference”.

Without conceding the appropriateness of the Examiner’s rejection of any of the claims currently pending, Applicants have voluntarily amended claims 1-5 to describe more accurately the distinctive features of the claimed invention.

As to the rejection of claims 1 under 35 USC §102, it is respectfully submitted that the Examiner did not properly reject claim 1 by pointing out specifically how each and every element of claim 1 is anticipated by the prior art.

Applicants have carefully reviewed the references cited by the Examiner. Neither Togawa et al. nor Nonaka teaches, suggests, or implies the distinctive features of amended claim 1. For example, Togawa and Nonaka do not teach a method including “trapping inside one or more cavities of said wafer support system a lower gas pressure than a gas pressure at

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an exposed surface of said semiconductor wafer", as is specifically recited in claim 1. Therefore, claim 1 is clearly not anticipated by either of the two references cited by the Examiner, or even by a combination of those references, had it been proper to combine them.

Furthermore, the trapping of a lower gas pressure allows the wafer support system to be separable from other parts of a system that helps creating the lower gas pressure, in contrast to systems described by Togawa and Nonaka. It is respectfully submitted that it would not have been obvious for a person skilled in the art to produce this feature of the invention based on the teachings of Togawa and Nonaka.

In view of the above, Applicants respectfully submit that claim 1 teaches distinctive features that are not taught, suggested, or implied by Togawa et al. and Nonaka. Therefore, claim 1 is not anticipated by Togawa et al. and Nonaka. Applicants respectfully request that the rejection of claim 1 under U.S.C. §102(e) be withdrawn.

Furthermore, as discussed above, Applicants respectfully submit that the distinguishing features of the claimed invention in claim 1 would not have been obvious to a person skilled in the art at the time the invention was made in view of the prior art references on record, alone or in combination, and, therefore, claim 1 is clearly patentable over the cited prior art references.

Claims 2-13 depend from claim 1 and include all the features of claim 1 as well as additional distinguishing features. Therefore, claims 2-13 are patentable at least for the reasons discussed above regarding claim 1. Applicants respectfully request that the rejections of claims 2-13 under U.S.C. §102(e) be withdrawn.

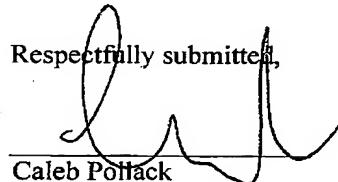
Conclusion

Applicants believe that upon reviewing the above amendments and remarks, the Examiner will appreciate that the changes in the claims relate to subject matter already within the scope of the searches and discussions to date, and that entry of these amendments will not require additional searches and will not impose any additional burden on the Examiner.

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In view of the preceding remarks, Applicants respectfully submit that all pending claims are now in condition for allowance. Favorable reconsideration and allowance of the claims are respectfully requested.

No fees are believed to be due in connection with this paper. However, if there are such fees due, please charge any such fees to deposit account No. 50-3355.

Respectfully submitted,

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